

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Tesla, Inc.)	
)	ET Docket No. 20-264
Request for Waiver of Section 15.255(c)(3))	
of the Commission's rules for Short Range)	
Interactive Motion Sensing Devices)	

REPLY COMMENTS OF TESLA, INC.

Tesla, Inc.
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October 19, 2020

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Tesla, Inc. (“Tesla” or the “Company”) respectfully files this reply to the initial comments submitted in response to the Public Notice of the Federal Communication Commission (the “Commission”),¹ regarding the Company’s request for a waiver of Section 15.255(c)(3) of the Commission’s rules to permit the marketing of a short-range interactive motion sensing device in the 57-71 GHz band at a higher power level than specified in the rule. Five comments were submitted in response to the Public Notice, all of which were supportive of the Office of Engineering and Technology (“OET”) granting Tesla’s waiver request. While nearly all commenters also were supportive of a broader rulemaking for the 60 GHz band, they agreed that OET should not delay in continuing to grant waiver requests such as Tesla’s. As explained, *e.g.*, by Valeo North America, Inc. (“Valeo”), “due to the demonstrated public interest and the urgency to bring the described applications into today’s vehicles, the Commission should continue to process and grant waiver requests such as Tesla’s.”²

¹ *Office of Engineering and Technology Seeks Comment on Tesla, Inc. Request for Waiver of Section 15.255(c)(3) of the Commission’s Rules for Short-Range Interactive Motion Sensors for Vehicle Radar Operation in the 60-64 GHz Band*, Public Notice, DA 20-898 (August 20, 2020) (“Public Notice”).

² Comments of Valeo North America, Inc. at pp. 2-3, ET Docket 20-264 (Sept. 21, 2020) (“Valeo Comments”). *See also* Comments of Alliance for Automotive Innovation at p. 2, ET Docket 20-264 (Sept. 21, 2020) (“Auto Innovators Comments”); Comments of Texas Instruments at p. 2, ET Docket 20-264 (Sept. 9, 2020) (“TI Comments”).

All commenters agreed that good cause exists to grant Tesla’s requested waiver because the proposed use cases would provide significant safety benefits. As explained in Tesla’s initial waiver request, the subject device, which could be integrated in passenger vehicle interiors, incorporates millimeter wave (mmWave) radar technology to detect movements within a vehicle and to classify vehicle occupants. As such, the device could provide a number of safety and security benefits, including reducing the risk of pediatric vehicular heatstroke, protecting vehicle occupants from injury through advanced airbag deployment and seatbelt reminders, and enhancing theft prevention systems.³

Tesla is particularly pleased to have received positive comments on the significance of these benefits from both the automotive industry and safety advocates alike. The Alliance for Automotive Innovation (“Auto Innovators”), an automotive industry trade group, commented that granting Tesla’s waiver request aligns with “the mission of innovating and accelerating the safe deployment of advances in personal transportation” and that the characteristics of mmWave radar make it “especially beneficial to address important safety issues.”⁴ Advocates for Highway and Auto Safety (“Safety Advocates”), an automotive safety coalition, similarly commented that the proposed system has “the potential to greatly enhance motor vehicle safety.”⁵

Commenters also generally agreed that granting waiver requests like Tesla’s would promote innovation. Safety Advocates commented on the development benefits and acceleration of innovation by granting such a waiver request, including the possibility that “these systems might even help eliminate the need for multiple additional sensors which were previously

³ See, e.g., Tesla Request for Waiver of Section 15.255(c)(3) at p. 1, ET Docket 20-264 (July 31, 2020) (“Tesla Waiver Request”).

⁴ Auto Innovators Comments at pp. 1-2.

⁵ Comments of Advocates for Highway and Auto Safety at p. 2, ET Docket 20-264 (Sept. 21, 2020) (“Safety Advocates Comments”).

necessary.”⁶ Safety Advocates also pointed to future beneficial use cases, such as the ability of autonomous vehicles to detect and classify occupants.⁷ Auto Innovators agreed that the waiver would promote innovation,⁸ and Acconeer AB commented that the use of such devices in the 60 GHz band “will be a key enabler for innovation to provide a safer and more sustainable society.”⁹

The commenters also universally agreed that the device would not cause additional interference in the 60 GHz band at the power levels requested by Tesla. Auto Innovators commented that “granting the waiver request will not pose a threat of harmful interference to other spectrum users,”¹⁰ Texas Instruments agreed that the operation of the device as proposed “will not cause harmful interference in the band,”¹¹ and Valeo explained that utilizing the same technical parameters as allowed for the Google Soli project would not cause harmful interference, as was already demonstrated in the Google waiver proceedings.¹² Moreover, Safety Advocates noted that the proposed system would “pose no reasonable risk to other vehicle-based safety functions.”¹³

On the topic of interference, Tesla would also draw the Commission’s attention to the fact that, since the Company’s initial filing, OET has published an Order granting a waiver of Section 15.255(c)(3), among other regulations, to Leica Geosystems AG.¹⁴ While Leica’s application use case is considerably different than Tesla’s (field disturbance sensors on aerial

⁶ Safety Advocates Comments at p. 1.

⁷ *Id.* at p. 2.

⁸ Auto Innovator Comments at p. 1.

⁹ Comments of Acconeer AB, ET Docket 20-264 (Sept. 21, 2020) (“Acconeer Comments”).

¹⁰ Auto Innovators Comments at p. 1.

¹¹ TI Comments at p. 1.

¹² Valeo Comments at p. 2.

¹³ Safety Advocates Comments at p. 2.

¹⁴ *Leica Geosystems AG Request for Waiver of Section 15.255 of the Commission’s Rules Applicable to Radars used on Unmanned Aerial Vehicles in the 60-64 GHz Frequency Band*, Order, DA 20-795 (OET 2020) (“Leica Order”).

vehicles versus on-road vehicles) and its requested power levels are considerably higher than those requested by Tesla (+19 dBm versus +13 dBm peak EIRP), the OET's findings on the lack of additional interference should apply equally here. For example, OET found that, "[b]ecause 60 GHz communication systems tend to use narrow antenna beams, especially in fixed point-to-point outdoor communication links, any harmful interference potential would be very short-lived."¹⁵ This conclusion also applies to Tesla's device inasmuch as it will be constantly moving through the 60-64 GHz band, essentially spreading the energy over this bandwidth, thereby reducing the interference on any specific frequency.¹⁶

The Public Notice also invited commenters "to address Tesla's assertion that its device would operate as a short-range interactive motion sensing device under Section 15.255(a)(2)." The commenters generally agreed that, while Tesla's device may operate differently than Google's Soli project in its application use cases, it nevertheless meets the definition of a "short-range device for interactive motion sensing." For example, Valeo commented that "the described application use cases should be seen as an example of short range interactive motion sensing."¹⁷ Acconeer similarly agreed that "these use cases fall within the definition of short-range devices used for interactive motion sensing."¹⁸ Likewise, Texas Instruments stated that "these application use cases are an example of short range interactive motion sensing."¹⁹

Finally, Tesla would like to take this opportunity to correct an apparent oversight in the Public Notice; specifically, whether the Company had requested a waiver of Section 15.255(a). While Tesla's position is that such a waiver is not necessary, and the Company acknowledges

¹⁵ *Id.* at ¶ 6.

¹⁶ While OET limited Leica's application use case to in motion operation only, Tesla's device should be allowed to operate when the vehicle is stationary given the limited range of sensing, *i.e.*, no more than 3 meters from the device itself.

¹⁷ Valeo Comments at p. 2.

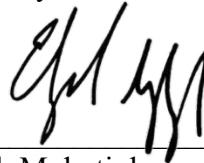
¹⁸ Acconeer Comments.

¹⁹ TI Comments at p. 1.

that the crux of its waiver request was focused on a waiver of 15.255(c)(3), Tesla also requested, in the alternative, a waiver of 15.255(a).²⁰ Thus, should the Commission disagree with Tesla and the commenters on whether the device constitutes a short range device for interactive motion sensing, Tesla requests that it grant the Company a waiver of Section 15.255(a).

Because Tesla's device will provide numerous safety and security benefits to vehicle occupants, without risking additional, harmful interference to other spectrum users, good cause exists to grant the Company's waiver request. Moreover, the Commission has already waived the Section 15.255(c)(3) power level limits for the Google Soli sensor – a device operating under identical technical parameters as the subject device – as well as the Leica Ictos device – a device operating at an even higher peak EIRP. Finally, there were no comments opposing Tesla's waiver request and all commenters agreed that such a waiver is appropriate here. As a result, OET should grant this request on an expedited basis.

Respectfully submitted,



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²⁰ Tesla Waiver Request at p. 10 fn. 31.